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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/883,039	06/15/2001	Jean-Paul Meraldi	34349-072824.0116	1278

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EXAMINER

FISCHER, JUSTIN R

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 05/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/883,039

Applicant(s)

MERALDI, JEAN-PAUL

Examiner

Justin R. Fischer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6, 8-16, 28-30 and 32-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 10-16, 28-30 and 34-38 is/are rejected.
- 7) ☒ Claim(s) 8, 9, 32 and 33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102/103

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 6, 12-16, 28-30, and 35-38 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Igarashi (JP 04185511, of record). Igarashi is directed to a tire construction in which a bead assembly is formed from a fiber reinforced plastic (FRP) linear body- this description is seen to constitute an elongate composite element of monofilament appearance (depicted in Figure 2). In describing the FRP linear body, Igarashi suggests that a plurality of non-metallic filaments 5, such as glass fibers, are encapsulated by a thermosetting resin having a modulus greater than or equal to 1.5 GPa, such as a heat resistant epoxy (Page 3, upper two sections- as obtained from oral translation by USPTO translator). Thus, in an analogous manner to the claimed invention, Igarashi suggests an elongate composite element usable as a tire reinforcing element and formed of substantially symmetrical technical fibers (glass fibers) and a high modulus,

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thermosetting resin. Regarding the elastic deformation in compression and the breaking stress in flexion, these properties are dependent on the composite materials and given the substantially identical makeup of the composite element of Igarashi and the claimed invention, it is the examiner's position that the composite element of Igarashi would satisfy the above noted characteristics. As to the specific fiber used, while the reference does suggest the use of additional, non-symmetrical fibers, such as carbon, one of ordinary skill in the art at the time of the invention would have found it obvious to select glass fibers since they are commonly used in their tire industry due to their high strength and high modulus properties- it is emphasized that Igarashi does expressly suggest the use of glass fibers, which are seen to constitute a substantially symmetrical technical fiber.

It is initially noted that the claim as currently drafted requires the composite element to be included in "that part of the tire which is located beneath the tread". While it appears that such language is designed to refer to the belt, it is evident that all of the tire components, including the beads, are in "that part of the tire which is located beneath the tread". It is suggested that applicant amend the claim to specifically describe the tire as having a belt reinforced with the claimed elongate composite element.

As to claim 3, Igarashi suggests the use of a plurality of thermosetting resins, including heat resistant epoxies- this description suggests the use of resins having a high glass transition temperature and as such, one of ordinary skill in the art at the time of the invention would have found it obvious to use a thermosetting resin having a glass

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transition temperature greater than 130 degrees Celsius. Additionally, applicant has not provided a conclusive showing of unexpected results to establish a criticality for the use of such a thermosetting resin.

Regarding claims 4, 12, and 35, as noted above, the thermosetting resin of Igarashi has a modulus of at least 1.5 GPa- this description clearly supports the selection of a variety of resins. It is emphasized that a modulus of 1.5 GPa represents the lower limit for the thermosetting resin- it would have been within the purview of one of ordinary skill in the art to appropriately select the modulus as a function of the specific bead structure and the specific tire being manufactured.

As to claims 6 and 30, tire reinforcing elements are conventionally covered with RFL to promote adhesion.

Regarding claims 13, 16, and 36, it is emphasized that the breaking stress and elastic deformation in compression are a direct function of the composite materials- applicant has not identified any unique processing to obtain the claimed characteristics. As noted above, Igarashi suggests the use of glass fibers and heat resistant epoxies, which appears to be consistent with the preferred composite of the claimed invention. As such, it is the examiner's position that the composite element of Igarashi has a breaking stress at least equal to 0.7 GPa and elastic deformation in compression at least equal to 3%.

With respect to claims 14 and 37, the composite element of Igarashi has a circular section (Figure 2).

Regarding claims 15 and 38, the composite element of Igarashi has a diameter between 0.7 mm and 2.0 mm (Abstract).

Claim Rejections - 35 USC § 103

4. Claims 10, 11, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Igarashi as applied in the rejections of claims 2 and 28 above and further in view of Kitahora (JP 04202825, of record). In describing the elongate composite element formed of glass fibers and a thermosetting resin, Igarashi suggests that the specific gravity is below 3.0; however, the reference is completely silent with respect to the fiber content (in relation to the resin content). In any event, the claimed ratio between 30 and 80%, more preferably 50 to 80%, is consistent with the well known dimensions or characteristics of elongate composite elements used in the tire industry, as shown for example by Kitahora. In this instance, Kitahora expressly teaches that the weight fraction of the fiber is between 30 and 80%, which encompasses the entire range of the claimed invention. Thus, one of ordinary skill in the art at the time of the invention would have found it obvious to use such a fiber content in the composite element of Igarashi (represents a proper balance between fiber and resin in regards to reinforcing capability).

Allowable Subject Matter

5. Claims 8, 9, 32, and 33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In particular, the prior art references of record fail to suggest the use of the claimed elongate composite element

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as reinforcement in the belt or additional reinforcement layer beneath the tread. As noted above, Igarashi teaches the specific use of the claimed elongate composite element in the manufacture of a bead reinforcement assembly- without any suggestion from Igarashi, one of ordinary skill in the art at the time of the invention would not have found it obvious to use said elongate composite element in a different reinforcement structure beneath the tread. In particular, the reinforcing elements in the respective regions do not have the same characteristics due to the difference in stresses experienced during running. Further, as set forth below, while additional references teach the use of an elongate composite element in the belt, the relevant references fail to suggest, disclose, or teach the specific elongate composite element of the claimed invention (type of fiber and resin and specific characteristics/properties).

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R. Fischer** whose telephone number is **(571) 272-1215**. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (571) 272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Justin Fischer

May 16, 2005